

WHAT IS CLAIMED IS:

1. A method for fabricating a semiconductor device comprising the steps of:

(a) performing a first thermal treatment at a temperature within 650-750°C for 30-240 minutes; and

(b) after the step (a), performing a second thermal treatment at a temperature within 900-1100°C for 30-120 minutes,

wherein the first and the second thermal treatments are the initial thermal treatments performed on a semiconductor substrate composed of silicon after the semiconductor substrate is introduced into a fabricating process.

2. The method of claim 1,

wherein the first thermal treatment and the second thermal treatment are both performed at a temperature increasing rate between 1-8°C/min, and a temperature decreasing rate between 1-60°C/min.

3. The method of claim 1 further comprises steps,

(c) after the step (b), performing a third thermal treatment on the semiconductor substrate such that metal impurities are diffused to gettering sites, and

(d) after the step (c), forming a gate insulating film on the principal surface of the semiconductor substrate.

4. The method of claim 3,

wherein in the step (c), gettering sites composed of a bulk microdefect (BMD) layer are formed at a depth of 1-10 μ m from the surface of the semiconductor substrate by the third thermal treatment, and

the concentration of the gettering sites is between $5 \times 10^8 \text{ cm}^{-3}$ and $5 \times 10^{10} \text{ cm}^{-3}$, inclusively.

5. The method of claim 3,

wherein thermal budgets in the first thermal treatment, the second thermal treatment and the third thermal treatment are set within a range that maintains the characteristics of the semiconductor device.

6. A method for fabricating a semiconductor device comprising the steps of:

(a) forming a gate insulating film on the principal surface of a semiconductor substrate composed of silicon; and

(b) before forming the gate insulating film, performing a thermal treatment on the semiconductor substrate such that metal impurities are diffused to gettering sites.

7. The method of claim 6,

wherein gettering sites composed of a bulk microdefect (BMD) layer are formed at a depth of 1-10 μm from the surface of the semiconductor substrate by the thermal treatment, and

the concentration of the gettering sites is between $5 \times 10^8 \text{cm}^{-3}$ and $5 \times 10^{10} \text{cm}^{-3}$, inclusively.

8. A semiconductor substrate composed of silicon,

the semiconductor substrate having gettering sites composed of a bulk microdefect (BMD) layer formed at a predetermined depth from the surface of the semiconductor substrate by performing initial thermal treatments on the semiconductor substrate, the initial thermal treatments including a first thermal treatment performed at a temperature within 650-750°C for 30- 240 minutes and a second thermal treatment performed at a temperature within 900-1100°C for 30-120 minutes after the first thermal treatment,

wherein the predetermined depth is smaller than or equal to a diffusion distance of

metal impurities to the gettering sites.

9. A semiconductor substrate composed of silicon,
the semiconductor substrate on which top surface an epitaxial layer having a predetermined thickness is formed,

the semiconductor substrate, on which the epitaxial layer is formed, having gettering sites composed of a bulk microdefect (BMD) layer formed below the epitaxial layer by performing initial thermal treatments on the semiconductor substrate, the initial thermal treatments including a first thermal treatment performed at a temperature within 650-750°C for 30- 240 minutes and a second thermal treatment performed at a temperature within 900-1100°C for 30-120 minutes after the first thermal treatment,

wherein the thickness of the epitaxial layer is smaller than or equal to a diffusion distance of metal impurities to the gettering sites.

10. A semiconductor substrate composed of silicon,
the semiconductor substrate having gettering sites composed of a bulk microdefect (BMD) layer at a predetermined depth from the surface of the semiconductor substrate,

wherein the predetermined depth is smaller than or equal to a diffusion distance of metal impurities to the gettering sites.

11. A semiconductor substrate composed of silicon,
the semiconductor substrate on which principal surface an epitaxial layer having a predetermined thickness is formed, and having gettering sites composed of a bulk microdefect (BMD) layer below the epitaxial layer,

wherein the thickness of the epitaxial layer is smaller than or equal to a diffusion distance of metal impurities to the gettering sites.